

and it need hardly be stated that partial occlusion of both carotids should be done with caution.

Instances of compression of the common carotids for epilepsy are so few in number that general conclusions must, of course, be withheld. In view of the extremely unsatisfactory results of non-surgical treatment of general epilepsy the practice of the plan of compression of the common carotids may be considered justifiable, though the procedure at present should be regarded as an experimental one. Unfortunately, today, as centuries ago, we are reduced to the sad necessity of trying many uncertain remedies in epilepsy, trusting that at some time we may hit upon one that is truly efficacious. Certainly carotid compression cannot be considered appropriate in cases in which there is the slightest reason to suspect irritation in any peripheral zone inducing the attack until such peripheral irritation has been excluded. If the operation is worthy of future trial it is in cases of idiopathic general epilepsy, occurring in youthful persons or in traumatic or focal epilepsy which has persisted after cranial decompression, or other appropriate intervention. In such cases the operation may be done without great fear of serious consequences and with considerable hope of benefit.

The circumstance that in three of the six cases operated on by the writer the severity of the attack was reduced, suggests that whereas the increased influx of blood to the brain probably does not bear to the attack the relation of ultimate cause, nevertheless, the sudden influx of blood may determine in some manner the time and also the severity of the attack. Moreover, in view of the accredited fact that peripheral stimuli in almost any zone may induce epilepsy, it is believed that the suddenly increased influx of blood to the brain may represent the agent which activated by such stimuli makes the direct assault upon the cortex. Obviously an earnest effort to locate and correct any cortical lesion or an existing peripheral source of irritation, for example, in a stagnant colon should precede an attempt to reduce the aggregate caliber of the afferent bloodvessels of the brain in general epilepsy.

In conclusion, I desire to express my appreciation of valuable assistance rendered in the preparation of this report by my associates Doctors W. C. Moore and H. K. Bonn.

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## STATISTICS OF AGE MORTALITY BASED UPON THE NUMBER OF PERSONS ALIVE AT EACH AGE.

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VARIOUS ways have been commonly employed to express the mortality from different diseases according to age. One method presents, for a given disease at a given age, the ratio of deaths at

this age to the total number of all deaths from that disease irrespective of age. A second method gives for a specified disease at a given age the ratio of deaths at this age to the total number of deaths from all causes irrespective of age. A third method shows for a given disease at a given age the ratio of deaths at this age to the total number of deaths from all causes occurring at that particular age.

Useful as these methods are for furnishing certain kinds of information, there is a great deal that they do not tell which is revealed by still another method. This method expresses for a certain disease the ratio of the number of persons dying at each age to the whole number of persons alive at the same age; that is, the mortality from the disease for every 10,000 persons living at the particular age. This method furnishes something like an absolute standard. Such figures render one independent of such variable factors as the number of persons living at other age-periods, or dying at the other age-periods or from other diseases. These other factors may be entirely misleading as to the proportion of deaths from a disease among those living at any one age-period.

This is by no means a new method for expressing age mortalities, but is not as generally recognized and employed as it should be. It is often omitted in text-books and other places that have a great opportunity for diffusing knowledge.

The charts presented in this paper are compiled from the United States Census Reports for 1910. The figures presented could not be obtained directly from these reports, but had to be compiled from different volumes, one volume dealing with mortality statistics, which does not give the age mortality per 10,000 persons living at the same age, and the other volume dealing with population statistics. Only the mortality figures for the registration area of the United States have been used, which includes 58.3 per cent. of the total population of the United States. The population statistics for the whole country had to be reduced, therefore, to 58.3 per cent. of their amount, to correspond to the mortality statistics for the registration area.

In all the charts the *dotted* line represents the number of deaths for the disease specified for different decades per 10,000 persons living at corresponding decades, except in the pneumonia chart where this line indicates the mortality per 1000 living persons. The *solid* line represents the ratio of deaths from a particular disease at different decades to the whole number of deaths at all ages from the same disease. The *broken* line in Chart III represents the ratio of deaths from tuberculosis at any decade to the total number of deaths from all causes at the corresponding decade.

The figures at the upper part of the charts indicate the different decades.

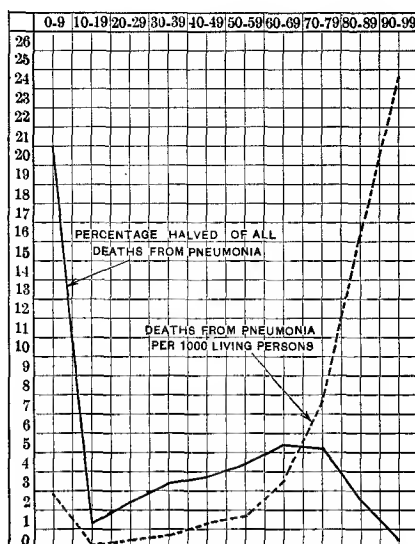


CHART I.—Pneumonia; all forms. Registration area of the United States.

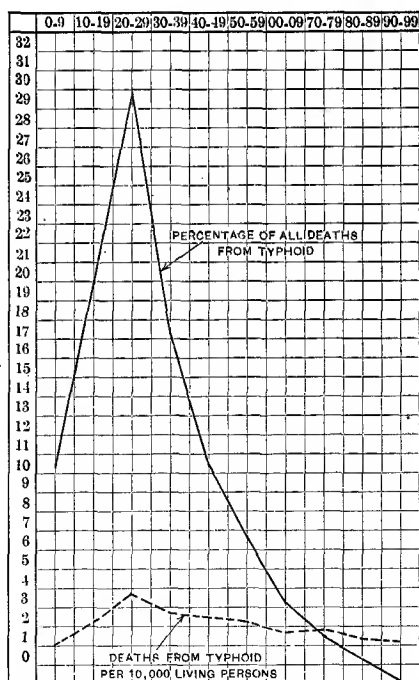


CHART II.—Typhoid fever. Registration area of the United States.

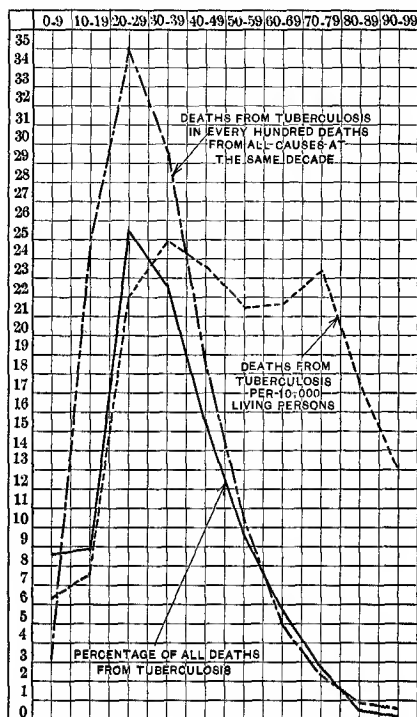


CHART III.—Tuberculosis; all forms. Registration area of the United States.

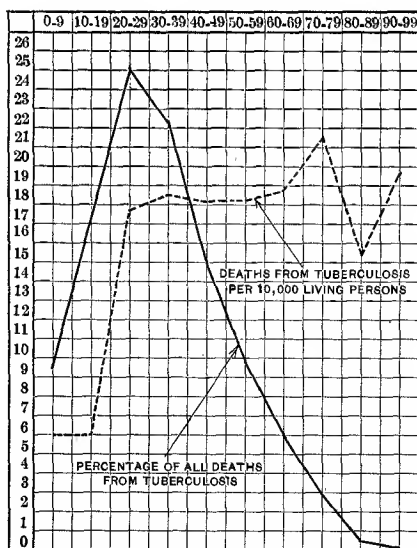


CHART IV.—Tuberculosis; all forms. Pennsylvania.

The figures to the left of the charts correspond to the points on different parts of the curves, and therefore indicate several things: (1) the number of deaths per 10,000 persons living at the specified decade except in Chart I, in which the mortality is expressed in terms of 1000 living persons; (2) the number of deaths due to the particular disease out of every 100 deaths at all ages from the same disease except in Chart I, where the percentage is halved, that is, should be doubled to give the proper percentages; (3) only in Chart III the number of deaths due to a given disease out of every 100 deaths from all causes at the same decade. Figures for those dying at an age over one hundred years or at an unknown age are not shown.

The charts deal with pneumonia, typhoid fever, and tuberculosis for the registration area of the United States, and with tuberculosis for Pennsylvania. Thus Chart I demonstrates how much more frequently persons die of pneumonia during later life, provided the mortality is based on the number of persons living at a corresponding age, and how misleading it would be to draw conclusions from the absolute number of deaths from pneumonia during the later decades. This chart also shows that while the proportion of deaths from pneumonia under ten years of age is high compared to all deaths from pneumonia at all ages, the large number of persons alive at this period materially reduces the relative prevalence of the disease at this decade.

Chart II reveals an interesting picture in regard to typhoid. The curve depicting the high figures for the decade twenty to twenty-nine corresponds to the average teaching that typhoid predominates markedly in youth and early adult life, this particular curve in the chart and the prevalent teaching on the subject being based upon the relation between the number of deaths from typhoid at this period and the total number of deaths from typhoid at all ages. The other curve in the chart shows the number of deaths from typhoid at each decade for each 10,000 persons living at the same decade, the contrasts in this curve being noticeably less striking than in the other curve.

Chart III pictures the mortality curve for all forms of tuberculosis in the registration area of the United States, and shows what has long been known, but is frequently overlooked, that tuberculosis continues unabated its extensive ravages even among elderly persons, though the absolute number of deaths from tuberculosis is actually diminishing. Among those who have emphasized the high mortality from tuberculosis among the aged are Wilson Fox and Cornet. A recent pamphlet issued by the Maryland State Department of Health, entitled "A Brief Review of the Tuberculosis Campaign, 1904-1914," shows that "in the white population beginning with the twentieth year of life all persons are equally liable to death from tuberculosis."

Chart III contains a third curve, not present in the other charts, representing the tuberculosis mortality at different decades in comparison to the total mortality from all diseases at corresponding decades.

Chart IV indicates the prevalence of tuberculosis in Pennsylvania at different ages, the mortality actually increasing in the decade seventy to seventy-nine. The figures given by Cornet indicate that for every 10,000 males between sixty and seventy years of age as many as 99.65 die of tuberculosis. German statistics frequently give a relatively higher mortality from tuberculosis among the aged than do the English figures.

Smaller divisions of the age-periods than decades will often furnish more important information. Thus we find for the registration area of the United States for pneumonia (all forms) 147.3 persons die under one year of age per 10,000 persons alive at this age, while the mortality at four years is only 6.7 per 10,000. Again, the mortality for diarrhea and enteritis under one year is 345.7 per 10,000 and at four years only 2.5 per 10,000.

Much more could be said on this subject, but I trust the one point it seemed worth while to specially emphasize has been made plain, that no figures satisfactorily express the frequency of the deaths from any disease at a given age unless they show the number of deaths from the disease for every 10,000 persons living at the same age.

## CONCERNING THE PRESENCE OF TUBERCLE BACILLI IN THE BLOOD OF TUBERCULOUS PATIENTS.<sup>1</sup>

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THE results of numerous studies of this subject during the past ten years have shown a complete lack of agreement among the various investigators. Some authors claim to have demonstrated tubercle bacilli regularly by a direct microscopic examination of the blood of tuberculous patients and frequently by the inoculation of such blood into guinea-pigs and rabbits, while other workers in this field report constantly negative results when microscopic examinations were made and few or no positive results when animal inoculations were employed. A review of the earlier work has been given by Bergeron,<sup>2</sup> and the more recent literature was well reviewed by Ernest Fraenkel,<sup>3</sup> and in this country by Berry.<sup>4</sup> That tubercle

<sup>1</sup> This work was carried out in the wards and laboratories of the Montefiore Home and Hospital for Chronic Diseases.

<sup>2</sup> *Etude critique sur la presence du bacille de Koch dans le sang*, Thèse, Paris, 1904.

<sup>3</sup> Schmidt's *Jahrbucher*, March, 1913, cccxvii, Hft. 2, 201.

<sup>4</sup> *Tubercle Bacilli in the Blood*, Jour. Inf. Dis., 1914, xiv, 162.